Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Investing in Canada's Future:

CIHR's Blueprint For Health Research and Innovation

2003/04 – 2007/08

Canada

Canadian Institutes of Health Research
410 Laurier Avenue W. – 9th floor
Address Locator 4209A
Ottawa, ON K1A 0W9
Canada
www.cihr-irsc.gc.ca

© Her Majesty the Queen in Right of Canada (2004)
Cat. No.: MR21-47/2004E-PDF
ISBN: 0-662-35926-7

Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Investing in Canada's Future:

CIHR's Blueprint For Health Research and Innovation

Canada

Contents

Message From The President 4

Introduction 5

Our Vision For The Future 8

Our Mandate 8

Our Values 9

Our Institutes 10

Our Strategic Directions 12

What Do We Aim To Achieve? 17

What Investment Is Needed To Realize Our Vision? 18

What Results Can Canadians Expect? 18

Appendix 1:
Objectives And Actions By Key Outcome Area 21

Message From The President

With the creation of CIHR in 2000, Canada is well positioned to realize the potential of health research and to become an international leader in both the creation and use of knowledge through research for the benefit of Canadians and the world.

In its first three years, CIHR laid the foundation needed to build an energized and innovative health research enterprise for the 21st century. Now, ***Blueprint*** articulates CIHR's vision, mandate and strategic directions for the coming years. The foundation for this plan is the extensive work of our 13 Institutes in developing their own strategic plans. The Institutes conducted wide-ranging consultations with a variety of stakeholders to identify their individual research priorities and contribute to the development of a national health research agenda.

Key to CIHR's success is an integrative vision that brings together all members of the health research enterprise, including those who fund research, those who carry it out, and those who use its results. Excellence, cooperation and partnership are the hallmarks that will characterize Canada's achievements in health research. We recognize the unique role and contributions of all partners, including individual researchers, universities, hospitals and other health organizations, the federal, provincial and territorial governments, research agencies, the voluntary health sector, health charities, industry and the public. Novel partnerships have been forged between CIHR and its partners and we are reaching out, as never before in Canada, to form international alliances.

CIHR is now poised to move to its second stage of evolution – a stage that is designed to accelerate the pace of discovery and its application, ensuring that Canadians reap the benefits of health research.

Alan Bernstein, O.C., Ph.D., FRSC
President
Canadian Institutes of Health Research

Introduction

Canada's future success depends on the health and well being of its people. Canadians care about their health and that of their families, friends and communities, and they take great pride in their health system. Not surprisingly, Canadians have come to expect access to high quality health services based on need.

Canadians also understand the value of health research in maintaining and improving their health and quality of life, and also believe that the future quality of Canada's health system is related to investments in health research today. The transformation of our health system - our largest knowledge-based industry with total expenditures in excess of $120 billion annually - into an evidence-based and research-driven enterprise is essential if we are to capture the health and economic benefits of the current revolution in health research – a revolution that holds out the potential to transform our lives and the Canadian health system in the 21st Century.

How Do We See Health Research Evolving?

This profound revolution in health research comes in many forms. From the fundamental new insights into the human body as a complex array of dynamic molecular interactions, to a deeper understanding of humans as social beings whose health is governed by a complex interplay amongst the biological, genetic, social, economic and environmental determinants of health – research advances are transforming how we diagnose, treat, and prevent disease and promote health.

In 2003, CIHR-funded researchers sequenced the SARS coronavirus in just 11 weeks.

New imaging modalities will allow more precise and less invasive methods of detecting early signs of disease and the onset of natural processes such as aging. We will gain a more comprehensive understanding of how the relationship between genetic endowment and social and environmental factors interact to determine individuals' and communities' susceptibility to disease. These insights promise, in time, to provide people with an individualized prescription for health promotion and disease prevention. New technologies such as telehealth are already leading to novel approaches to the delivery of health services to remote areas of Canada and even to other countries.

The pace of this revolution is accelerating. For example, beginning in the early 1990s, it took nearly a decade to determine the DNA sequence of HIV, the virus that causes AIDS. In 2003, CIHR-funded researchers sequenced the SARS coronavirus in just 11 weeks. The challenge for Canada in such a world is to create nimble, forward-looking policies and programs to enable Canadian researchers to be world leaders in their fields, and Canada

to be internationally competitive. Spectacular advances in our understanding of human health and disease are also being fuelled by new ways of thinking, new technologies, new partnerships, and new industries. Further, the revolution in health research is itself creating transformative new technologies, and industries, including biotechnology, medical imaging, nanohealth and health informatics.

Planning for Canada's health research enterprise must take account of this rapidly changing world. Historically, biomedical research has owed its success to individual researchers or small groups working in individual laboratories. The complexity and scale of today's research challenges increasingly require that researchers and countries reach out beyond their own areas of expertise and that we experiment with new models to bring people and sectors together. This work will be enabled through the technological advances that support virtual networks. Partnerships and shared vision will underpin the most successful health research stories of the 21st century in ways unimaginable in the 20th century.

In a mobile world, health challenges and disease know no boundaries. New diseases are appearing, and what were once considered "third world" issues are becoming first world concerns. Public safety and security requires a health system and research community that can respond quickly and appropriately to rapidly emerging health issues.

The pace and impact of research is set by creativity and ingenuity.

While health research has made revolutionary strides over the last 50 years, there remains an unacceptable lag time between discovery and the realization of health and economic benefits from applying the knowledge generated through research. Thus, countries and societies face the common challenge of how best to mobilize research to bridge the gap between what we know and what we do.

Transforming Health Research In Canada

Canada, like other industrialized countries, is competing for the best and brightest researchers. We have to ensure that Canada is firmly positioned at the cutting edge of an increasingly research-driven global economy. The pace and impact of research is set by creativity and ingenuity. The imminent retirement of the baby boom generation of university faculty will also require focus and resources to attract and retain a strong research community.

Government investments since 1997 have supported an unprecedented increase in health research, through CIHR, and other new funding organizations and programs, such as the Canada Foundation for Innovation (CFI), Canada Research Chairs (CRC), and indirect costs. While these investments have renewed and invigorated the health research enterprise, the funding landscape is increasingly complex for researchers, host institutions and partners to navigate.

The Canadian government has recognized the central importance of health research for the future of Canada by establishing CIHR in 2000 with the mandate of both stimulating excellent health research and translating it into an improved health system, more effective products and services, and ultimately, improved health for Canadians.

Today, CIHR funds more than 8,000 health researchers in universities, teaching hospitals and other health organizations, research centres and government laboratories across the country. CIHR's grants and awards budget has increased from $275 million in 1999/2000, to $580 million in 2003/2004. The number of grants funded, of all types, has increased from over 2900 in 1999/2000 to over 4200 in 2002/2003, while the average value of operating grants awarded each year has increased from $80,000 to approximately $105,000. Whereas the greatest absolute increase in dollars invested has been in biomedical sciences (close to $150 million), the increased investment, relative to 1999/2000, has been proportionately greatest for health services research (16-fold increase) and for research on population health (six-fold increase). Investment in clinical research has increased more than two-fold, and the average value of a CIHR-funded clinical trial has increased by 158% over this period.

Through these investments, CIHR is addressing diseases that have a negative impact on health and pose an economic burden on individuals and society as a whole. The economic impact of disease represent billions of dollars each year in total costs—both in direct health care costs and indirect costs (ie. the value of losses due to illness, injury-related work disability or premature death).

CIHR's grants and awards budget has increased from $275 million in 1999/2000, to $580 million in 2003/2004.

CIHR's broadened, problem-based mandate reflects a deliberate strategy to reach out to all disciplines and research approaches that are relevant to the challenges of human health and disease, and the efficient delivery of effective and appropriate health care services.

With the creation of CIHR and other federal investments in research, Canada is now positioned to become a world leader in advancing the creation and use of new health knowledge for the benefit of Canadians and the global community. Research truly is the engine of progress in health and in the evolution of knowledge-based economies.

The benefits for Canada of sustaining and increasing our investments in health research are clear. They include:

- a healthier nation overall and better quality of life for individuals;
- a strengthened, responsive and more productive health system;
- challenging careers for young Canadians;
- rewarding work to keep our best and brightest researchers, mentors and educators in Canada;

- rapid adoption of sound research into evidence-based practice, programs and policies;
- stimulation of economic development through discovery and innovation; and
- branding of Canada as an international leader in health and health research.

The Next Stage in CIHR's Evolution

Over the past year and a half, CIHR has been developing its strategic plan, - *CIHR's Blueprint*, - to guide its future directions. The foundation for *Blueprint* was the extensive work of our 13 Institutes in developing their own strategic plans. The Institutes each undertook wide-ranging consultations with a variety of stakeholders to identify their individual research priorities and to contribute to the development of a national health research agenda.

During the summer of 2003, CIHR conducted a national consultation process to gain input on its draft strategic plan. CIHR used a three-pronged approach during the *Blueprint* consultations that included: town hall meetings, direct input from stakeholder groups and individuals, and a web-based survey.

This document presents the final *Blueprint* - CIHR's strategic plan for five years. The plan envisions a future involving close alignment and partnerships among CIHR and its stakeholders, including other agencies and departments of the federal government, provincial and territorial governments, health charities, the private sector, universities, hospitals and other health organizations, provincial and international research agencies, and the Canadian public. Partnerships and collaboration are increasingly the way that health research stakeholders do business, and are key to CIHR's success in achieving its vision for the future.

Our Vision For The Future

CIHR's vision is to position Canada as a world leader in the creation and use of knowledge through health research that benefits Canadians and the global community.

Our Mandate

The mandate of CIHR is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system (Bill C-13, April 13, 2000).

Our Values

To assure Canadians that their investments in health research are wisely used, core values guide CIHR and influence all aspects of the organization and its relationships with others. In no order of priority, these core values include:

Public Interest	The public interest is of paramount importance in the creation and use of health knowledge through all research and related activities supported by CIHR.
Excellence	In all aspects of the work undertaken by CIHR, including research, knowledge translation and organizational services, CIHR strives to meet the highest international standards of excellence.
Ethics	CIHR believes that excellent research and good governance require the development and application of sound ethical principles.
Integrity	CIHR upholds and promotes adherence to relevant research and organizational policies with utmost honesty, probity and professionalism.
Freedom of Inquiry	CIHR recognizes that the primary purpose of all research in the public domain is the creation of new knowledge in an environment that embodies the principles of freedom of inquiry and unrestricted dissemination of research results.
Transparency and Accountability	Decision-making processes should ensure that all decisions are fair, open, reputable and able to bear close public scrutiny. Honest and cost-effective accountability mechanisms will be in place for all aspects of the work undertaken by CIHR.
Collaboration	CIHR values positive and mutually respectful relationships with partners and stakeholders who are committed to openness, responsibility and fairness and are mutually respectful of each other's priorities and objectives.
Evidence	Funding priorities and policy making at CIHR must be based on the best available evidence.
Innovation	CIHR values new ideas and creative approaches to addressing health and health system challenges in Canada and worldwide.

Our Institutes

CIHR's mandate and structure are unique in the world. CIHR is structured around 13 virtual geographically distributed Institutes that each support research in biomedical, clinical, health systems and services and population health. The Institutes are based in universities or teaching hospitals across the country, but may also have staff located in a variety of other venues. The Institutes are part of a larger national research network that links researchers and other stakeholders across the country.

CIHR's Institutes

- Institute of Aboriginal Peoples' Health
- Institute of Aging
- Institute of Cancer Research
- Institute of Circulatory and Respiratory Health
- Institute of Gender and Health
- Institute of Genetics
- Institute of Health Services and Policy Research
- Institute of Human Development, Child and Youth Health
- Institute of Infection and Immunity
- Institute of Musculoskeletal Health and Arthritis
- Institute of Neurosciences, Mental Health and Addiction
- Institute of Nutrition, Metabolism and Diabetes
- Institute of Population and Public Health

Each Institute is led by an internationally recognized Scientific Director who receives advice and support from an Institute Advisory Board (IAB). Over 200 IAB members support and advise the Institutes, linking individual Institutes and CIHR overall, to the wider health research and research user communities, and to the public and other stakeholders. They provide a means through which those stakeholders can inform and influence CIHR's priorities for health research.

Institutes identify health research and knowledge translation priorities for Canada based on:

- a growing understanding of the multi-factorial nature of health problems and opportunities for health enhancement;
- the involvement and recognition of, and respect for, the contributions of health researchers from all research disciplines and of researchers from outside traditional health research areas;

- the involvement and coordination of a wide range of partners from all relevant sectors, the provinces and other countries;
- the development, attraction and retention of the best possible health researchers for Canada;
- the creation of knowledge based on health research that meets the highest international standards of excellence and ethics; and
- the application of that knowledge to the development and implemention of innovative policy and practice.

CIHR's Institutes have also collectively identified a number of major crosscutting research initiatives (e.g. global health, regenerative medicine, environmental health, rural and northern health) that cut across the mandates of the Institutes. These large initiatives represent niche areas for Canadian research, present outstanding scientific opportunities, and respond to major health issues. Collectively, these crosscutting strategic initiatives represent a mobilization of Canada's health research resources to address pressing health issues on a scale that has not previously been possible.

CIHR's Institutes have developed a suite of new research programs designed to build the multidisciplinary health research teams of the 21st century.

In three short years, CIHR's Institutes have developed a suite of new research programs designed to build the multidisciplinary health research teams of the 21st century. They have also launched new strategic initiatives to address new research opportunities and the health challenges facing Canadians– from rapid responsiveness to the unforeseen (e.g. CIHR's three-pronged approach to SARS), to long-term investments for Canada (e.g. the Canadian Lifelong Health Initiative, and the Strategic Training Initiative in Health Research), to high-risk investments with potential for big returns (e.g. proof-of-principle investments, new discoveries seed grants).

The accelerating convergence in health research means that CIHR's Institutes will continue to develop program tools that encourage collaborative, multidisciplinary, problem-based research. Examples include New Emerging Teams, transdisciplinary strategic training programs, Interdisciplinary Health Research Teams, and Community Alliances for Health Research.

Our Partners – Key to Our Success

Partnerships are integral to the vision of CIHR. By building partnerships amongst its stakeholders – those that have an interest and stake in health, the health system, and health research - Canada will be better positioned to support stronger, internationally competitive research initiatives that produce quality results more quickly for the benefit of Canadians.

While partnerships provide additional financial resources for research, their importance goes far beyond money. Partnerships are about shared vision, common objectives and alignment of priorities and programs. Partnerships are critical in helping CIHR set its research agenda, share best practices in research, build research capacity, make more effective use of resources for research and eliminate redundancy in research activities and funding. And finally, partnerships are key to any successful knowledge translation strategy.

CIHR will continue to build partnerships with relevant stakeholders including the public, health charities and other not-for-profit organizations, governments, universities, health organizations, other research agencies, industry, and international organizations to develop national and strategic programs that best enable Canadian researchers and research institutions to be competitive internationally.

Our Strategic Directions

Our Institutes are integral to the future of CIHR. Implementation of *Blueprint* will result in a closer alignment of organizational programs and activities within CIHR and among its 13 Institutes. *Blueprint* is designed to complete CIHR's transformation from a granting council to an internationally respected health research agency, ensuring an integrated Institute-driven health research agenda that is responsive to the needs of CIHR's stakeholders for the benefit of all Canadians.

Five key strategic directions will guide the activities of CIHR's Institutes over the coming years:

Strengthen Canada's health research communities.

Address emerging health challenges and develop national research platforms and initiatives.

Develop and support a balanced research agenda that includes research on disease mechanisms, disease prevention and cure, and health promotion.

Harness research to improve the health status of vulnerable populations.

Support health innovations that contribute to a more productive health system and prosperous economy.

1. Strengthen Canada's health research communities.

Progress in research requires the best researchers, supported at internationally competitive levels of funding, working in stimulating and supportive environments. Outstanding researchers attract outstanding colleagues and young people, as well as much-needed additional resources. They are also the best teachers and mentors for the next generation of health researchers and health care providers.

CIHR is committed to strengthening Canada's health research communities by continuing to broaden, deepen and sustain health research excellence. A skillful and energetic cadre of accomplished researchers, working in state-of-the-art facilities with the best equipment and data, and outstanding trainees, is the best strategy to ensure that Canada has the capacity and expertise to mobilize in order to address important health issues.

The contributions and excellence of individuals and individual disciplines are at the very foundation of CIHR's vision of health research. Indeed, CIHR's single largest investment, through our open grants competition, is to fund the research of individuals, allowing them to pursue their own creative ideas for novel and significant research projects. CIHR will fund the best ideas of the most talented researchers at internationally competitive levels, and across the full spectrum of health research.

All types of research require the excellence, imagination, creativity and hard work of individuals.

At the same time, we will build on this foundation of research excellence through targeted research investments focused on emerging opportunities and challenges. CIHR will continue to invest in strategic research initiatives designed to take advantage of new knowledge flowing from scientific progress, and to respond to the challenge of the health research priorities identified by our Institutes.

Setting the right balance—between researcher-driven and targeted opportunities, between grants to individuals and grants to multidisciplinary teams—is critical to the vitality of the Canadian health research enterprise. All types of research require the excellence, imagination, creativity, and hard work of individuals. Interdisciplinary and strategic research must be built on this broad foundation of excellence. CIHR will develop a strategic and responsive organization built on excellence, as judged by the highest international standards.

CIHR will continue to catalyze and encourage the convergence of disciplines that underlie the most exciting and important discoveries in health research, and to resolve ever-more complex health problems. Thus, CIHR will continue to increase its support for multi-disciplinary and multi-sectoral teams of researchers as well as teams of researchers

working with community groups, policy-influencers, practitioners, industry, and others working to mobilize research into action.

CIHR will ensure that it supports the right balance and mix of health researchers to realize its mandate and strategic objectives. It will continue to reach out through its programs and activities to those research communities that can contribute to health research, such as the mathematics, engineering, natural sciences, business, social and human sciences.

New investigators bring new ideas and the energy of youth to health research.

CIHR recognizes the importance of new investigators to the Canadian health research enterprise. They bring new ideas and ways of thinking and the energy of youth to health research. As the baby boom generation retires, outstanding young faculty will also be the next leaders in Canada's universities, research institutions and the health system. CIHR will explore mechanisms that allow our best new investigators to establish internationally competitive programs of research.

Finally, attracting children and youth to the excitement, relevance and importance of a career in health research is key to ensuring the strength and vitality of Canada's health research enterprise in the coming decades. CIHR will develop, in partnership with relevant stakeholders, a national initiative that reaches out to young Canadians.

2. Address emerging health challenges and develop national research platforms and initiatives.

CIHR will stimulate and sustain research that capitalizes on key scientific opportunities, addresses important and emerging health issues of concern to Canadians, and contributes to the health of a worldwide society. CIHR is also committed to developing, supporting and sustaining new national platforms and initiatives in health research.

Examples include:

- national strategies and mechanisms for rapidly responding to emerging threats to the health of Canadians(e.g. SARS, West Nile, and Prion diseases), as illustrated by CIHR's three-pronged strategy for the SARS outbreak, and the Canadian Research Coalition for Safe Food and Water;
- the Canadian Lifelong Health Initiative - a major longitudinal and multi-generational data platform that will follow cohorts of newborns, middle-aged and older adults and that will be used in research to delineate the genetic, psychosocial, cultural, economic and environmental determinants of health throughout the life course;
- a Canadian Strategy for Cancer Research, in partnership with the National Cancer Institute of Canada, the Association of Provincial Cancer Agencies and Health Canada;
- an alliance for a Canadian Arthritis Plan – a national platform for integrating research with education and clinical care;

- a coordinated and integrated research approach to mental health, working with the provinces, the private and the voluntary sectors;
- a national initiative in regenerative medicine and nanotechnology applied to health in partnership with the National Research Council, Natural Sciences and Engineering Research Council, Industry Canada, the private sector and the provinces;
- a re-invigorated and modernized approach to clinical research through national networks, core facilities, mentoring, and training and research programs for young clinician scientists and programs to support established clinician researchers;
- development, with partners, of mechanisms to prioritize and fund large-scale national and international health research initiatives in which Canada plays a leadership role; and
- an evidence-based, ethically-sound and values-driven approach to the incorporation of genetics and genomics into the health system.

3. Develop and support a balanced research agenda that includes research on disease mechanisms, disease prevention and cure, and health promotion.

CIHR is committed to a research agenda that recognizes that future improvements in health and well-being will depend on research that:

- increases understanding of both the molecular and biological mechanisms underlying diseases as well as the psychosocial, economic and environmental determinants of health;
- supports efforts to develop new vaccines, diagnostic tools and cost-effective therapies to prevent injury, illness and disease;
- allows Canadians to understand and prevent the underlying social and behavioral causes of injuries and lifestyle diseases such as tobacco addiction, drug abuse and obesity; and
- promotes healthy living and reduces risky behaviors.

4. Harness research to improve the health status of vulnerable populations.

CIHR is committed to supporting research focused on improving the health status of vulnerable populations, particularly Canadians who live in poverty; residents of northern and rural Canada; Aboriginal peoples; immigrants and refugees; people facing gender inequities; the homeless; children; the mentally ill; seniors; the disabled and chronically ill; and victims of violence; and to support research on improving access to effective delivery of health services for these same vulnerable populations.

CIHR will support research that emphasizes:

- access to and equity in health services for vulnerable populations;
- biological, social, economic, cultural, and structural/environmental factors that influence vulnerability and disparities;

- identification, description and analyses of health disparities at the population level; and
- intervention research that informs the development of responsive programs, policies, and practices.

5. Support health innovations that contribute to a more productive health system and prosperous economy.

CIHR recognizes that where there is research evidence to inform decisions, this knowledge can strengthen the health system. And, when the research process is guided by the needs of the users of research, findings are more likely to be translated into new knowledge. The process of translating knowledge into action is complex and rarely a straightforward chain of events. In this regard, CIHR will focus on:

- advancing research in the use of health knowledge;
- developing and sustaining a broad range of individuals involved in the exchange and use of health knowledge; and
- developing and sustaining innovative environments that enable and catalyze the effective use of health knowledge.

CIHR will help create the environments that help bridge the gap between research and the applications of its results.

Clearly, we need to continue to support research on effective knowledge translation strategies. CIHR will support research that seeks to determine the most effective strategies and techniques for the dissemination and exchange of knowledge created through health research. CIHR will also support research designed to determine effectiveness of new and/or changed health policies, programs and practices.

CIHR is committed to providing programs designed to support a culture change among health researchers and institutions by supporting researchers who demonstrate a commitment not only to conducting outstanding health research, but also to working collaboratively with potential users of research in ways likely to improve knowledge translation.

CIHR, through its programs, will help create the environments that will help bridge the gap between research and the applications of its results. CIHR will support programs that bring together researchers and users to accomplish knowledge translation and exchange for:

- a more effective, efficient, equitable and responsive health system;
- more effective health products and services to contribute to the stimulation of economic activity; and
- improved health for Canadians through sound policies and programs.

Finally, CIHR also has a role in helping to move promising new research breakthroughs toward potential commercial applications. CIHR has developed a commercialization strategy designed around three axes – mobilizing research (drug and device development; proof of principle; discovery and clinical research); people (technology transfer, clinical trials mentoring, industrial fellowships); and building partnerships. CIHR's commercialization strategy will focus on early stages in the commercialization pipeline, stages where CIHR and others have identified a growing gap between a good idea and its exploitation for economic and health advantage.

What Do We Aim To Achieve?

In pursuit of its mandate and vision, CIHR aims to achieve the following strategic outcomes:

- ***outstanding research*** - to advance health knowledge, through excellent and ethical research, across disciplines, sectors, and geography;
- ***outstanding researchers in innovative environments*** - to develop and sustain Canada's health researchers in vibrant, innovative and stable research environments; and
- ***transforming health research into action*** - to catalyze health innovation in order to strengthen the health system and contribute to the growth of Canada's economy.

These strategic outcomes will be enabled through:

- ***effective partnerships and public engagement*** - to engage with the public through meaningful dialogue and establish effective partnerships with key stakeholders; and
- ***organizational excellence*** - to achieve our mandate through excellence in staff, service delivery, systems, and management.

Based on its five strategic directions, CIHR has identified measurable objectives and actions for each outcome area. These are presented in Appendix 1.

What Investment Is Needed To Realize Our Vision?

Research takes time and a sustained investment. To realize the vision and specific objectives of this bold plan, CIHR requires a sustained and up-front multi-year funding commitment for growth in its budget from its current level of $620M to $1 billion.

The table below presents the investment that will be required between 2003/04 and 2007/08. Although knowledge creation through open competitions and strategic initiatives remains the primary focus for future investments, an increased proportion of the budget will be directed to knowledge translation, including commercialization.

Programs	Fiscal Year 2003-04		Proposed Additional Investment	Fiscal Year 2007-08	
(in millions)					
Knowledge Creation	$529M	85%	$297M	$826M	83%
Knowledge Translation					
Health System	15	2%	19	34	3%
Commercialization	31	5%	39	70	7%
Organizational Excellence	46	7%	24	70	7%
Total	**$621M**	**100%**	**$379M**	**$1,000M**	**100%**

What Results Can Canadians Expect?

As a federal agency, CIHR has an ongoing responsibility to demonstrate to Canadians that tax dollars are spent wisely. In recent years, public-sector activities have become subject to increased scrutiny, raised expectations, and value-for-money audits and evaluations.

To account to Canadians on its performance, CIHR has developed a framework to facilitate the ongoing evaluation and reporting on the outcomes of the organization and its programs according to key strategic outcome areas – outstanding research; outstanding researchers in innovative environments; translating knowledge to action; partnerships and public engagement; and organizational excellence. Over the past year, CIHR's 13 Institutes have developed and prioritized performance indicators that will populate the framework for ongoing reporting purposes.

CIHR is also completing evaluations of a number of its programs, including its largest investment – its open operating grants program. To support its efforts in this area, CIHR will continue to enhance its in-house analytical capacity and databases – including providing public access to information about CIHR's investments in health research, the results and impacts of that research, and evaluations of the organization and its programs.

Clearly, however, if CIHR is to be successful, it must demonstrate to Canadians not only the value of individual programs within its suite of programs but also the overall return on investment (ROI) to Canadians by CIHR as an agency. This is a particularly vexing measurement challenge for research – something that countries around the world are grappling with. It is not that health research does not have significant effects on the health of Canadians, and on the robustness of their health care system and economy, rather, demonstrating direct and objective links between particular research investments and immediate, short-term or long-term, identifiable and measurable, outcomes, is difficult.

The search for new knowledge and discovery is inherently worthwhile, the more of it, the better.

What good comes of health research? For some, it is an intrinsic good – the search for new knowledge and discovery is inherently worthwhile, the more of it, the better. The process of discovery is incremental, and as such, tangible benefits do not materialize immediately. As a result, no one can predict which new knowledge will be instrumental, even decades later, in advancing health or leading to economic advantage. Indeed, even a superficial analysis of recent history in the biological sciences illustrates the power of outstanding fundamental research to impact on health, the health care system and the economy. For example, the fundamental research on the ability of bacteria to restrict incoming bacterial viruses led to the discovery of restriction enzymes, and the ability therefore to cut DNA at specific sites. From these very fundamental advances, came recombinant DNA technology, the entire biotechnology industry, and an entirely new way of discovering and designing new drugs. This is a powerful example of the importance of supporting outstanding health research with no immediately obvious health or economic outcome.

Others have a more agnostic view—that health research is instrumental and subordinate to other goals (e.g. better health, economic productivity) and moreover, competes with other claims for public dollars.

This raises a number of questions for CIHR, of which the most important are:

1. What does return on investment mean in the context of health research?
2. What is a reasonable rate of return for health research and how would one measure it when many of the most important outcomes of the investment in health research cannot usefully be measured in dollars?

3. Should there be a single set of ROI measures or should a different conceptual approach be taken to different kinds of health research (e.g., basic science, clinical science, health services research, population health research)?

4. What is the duration of a reasonable investment-and-return cycle in health research? Because health research is often long-term and cumulative, and because its impact may materialize through multiple and non-linear pathways, how precisely can one estimate an ROI?

5. How should one measure benefits not easily expressible in dollar or any other quantitative terms?

6. What is the best method of attributing the return to CIHR's specific investment when the knowledge that ultimately yields returns (in various forms) will almost always be built on research contributions from around the world?

There are no easy answers to these questions. Nonetheless, given the importance of informing Canadians about the results and benefits of health research, CIHR will develop an ROI framework that aligns well with its mandate, priorities, and scope of activities. In addressing the ROI challenge, CIHR will examine international best practices, and consult with relevant stakeholders both on the supply side (research funders and producers), and the demand side (the users and beneficiaries of research). The expected outcomes of this work include:

- the development of a progressive, balanced, and nuanced ROI framework for health research in Canada;

- a valuable addition to the toolbox for evaluating performance and setting future priorities of CIHR programs that may be of use to other funding agencies; and

- a valuable statement and documents for educating, and unifying the diverse health research communities and supporters, and creating realistic but ambitious expectations about what Canadians can expect from sustained investment in health research over time.

Appendix 1: Objectives And Actions By Key Outcome Area

Outstanding Research	
Objective	**Action**
1. Support the creative proposals of excellent Canadian health researchers across the full spectrum of health research.	• Strengthen Canada's capacity for excellent and ethical health research by providing grants, adequate in number and value, to support the very best proposals of both individuals and teams of health researchers. • Support applications from all research communities relevant to health, to continue to broaden the scope of CIHR-funded research.
2. Stimulate and sustain research that capitalizes on key scientific opportunities, addresses important and emerging health issues of concern to Canadians, and contributes to the health of a worldwide society.	• Support excellent, ethical and innovative research responsive to Institute-identified research priorities. • Increase support for research that contributes to improvements in the health status of vulnerable populations. • Increase support for research initiatives in health promotion and disease prevention. • Respond to emerging health threats with targeted programs of health research support.
3. Encourage and support interdisciplinary, collaborative research designed to resolve complex health issues.	• Establish and sustain innovative programs for interdisciplinary collaborative research that are accessible to investigators working in all areas of health research. • Enhance the ability of CIHR's peer review system to appreciate and evaluate interdisciplinary collaborative research proposals. • Support research on the ethical, legal, and sociocultural issues related to health and the delivery of health care as an integral part of the multidisciplinary approach to complex health problems.
4. Stimulate research activities that accelerate the translation of health research into action.	• Strengthen support for intervention research and clinical trials with potential to directly affect quality of care, quality of life, and the effectiveness of the health system. • Establish and sustain innovative programs to support researcher collaboration with the industry sector.
5. Increase Canadian contribution and visibility in international initiatives in health research.	• Support selected, large-scale international initiatives where Canadian researchers lead or make a unique contribution to international efforts. • Increase the number of bi- or multilateral collaborative agreements with research agencies in other nations, in priority areas. • Improve opportunities for Canadian researchers to participate in research activities funded by international agencies, including providing support for establishing collaboration and developing proposals.

Outstanding Researchers In Innovative Environments	
Objective	**Action**
1. Build health researcher capacity across the broad spectrum of health research in a vibrant, innovative, and stable research environment.	• Increase the supply of health researchers in areas of need identified by Institutes through support of both early and mid-career training opportunities. • Increase the number of outstanding new investigators and retain established researchers, with special attention to increasing the participation of women and Aboriginal people in health research. • Provide programs designed to attract and repatriate outstanding health researchers to Canada from abroad. • Complement and build on current research capacity building initiatives and programs established by relevant stakeholders (e.g. CRC, CFI, CGS). • Support programs and networks designed to reduce regional disparities in the training and establishment of researchers. • Support policies, systems and practices that promote a culture of ethics and integrity in health research.
2. Develop, support and sustain new national platforms and initiatives for health researchers.	• Build the Canadian Lifelong Health Initiative with partners: a major longitudinal and intergenerational study to follow cohorts of newborns and seniors to delineate the genetic, psychosocial, cultural, economic and environmental determinants of health and healthy aging. • Establish a modernized Canadian platform for clinical research including national networks, core facilities, sustainable support mechanisms for clinician researchers, and innovative mentoring and training opportunities. • Support inititatives intended to develop, expand and refine research approaches and methods used by researchers. • Support the development of, and improve access to, health and health services data to enable researchers to undertake outstanding research.
3. Engage Canadian youth in health research.	• Develop and implement programs to initiate young Canadians into health research.
4. Enhance and sustain supportive research training environments and networks.	• Support innovative training programs that provide students and post-doctoral fellows with experience in interdisciplinary, collaborative and inter-sectoral (e.g. industry, policy, community-based) research environments. • Support mentorship of new researchers and establish networks of collaboration and support.

Transforming Research Into Action	
Objective	**Action**
1. Advance research in the use of health knowledge.	• Support research that seeks to determine the most effective strategies and techniques for dissemination and exchange of knowledge created through health research. • Support research designed to determine effectiveness of new and/or changed health policies, programs, and practices. • Work in partnership with research institutions, other government agencies and industry to ensure timely commercialization of intellectual property derived from research.
2. Develop and sustain a broad range of individuals involved in the exchange and use of health knowledge.	• Provide programs designed to support a culture change among health researchers and institutions by supporting students, post-doctoral fellows, young investigators and scholars, and their mentors, who demonstrate a commitment not only to conducting outstanding health research, but also to working collaboratively with potential users of research in ways likely to improve knowledge translation.
3. Develop and sustain innovative environments that enable the effective use of health knowledge.	• Develop and support programs in partnership with stakeholders that bring together partners to bridge the gaps between research, practice, programs and policy. • Develop and implement mechanisms that foster effective communications and enable researchers and users of research knowledge to build productive relationships. • Support initiatives that will identify effective approaches to translating health knowledge by users. • Monitor and evaluate worldwide approaches to knowledge translation, and engage with international partners who have a similar mandate or interest.

Effective Partnerships and Public Engagements	
Objective	**Action**
1. Engage in mutually beneficial international partnerships.	• In consultation with stakeholders, develop and implement a comprehensive framework to guide partnership activities. • Promote productive relations with relevant international stakeholders to gain synergies, enlarge scope of inquiry, and pool resources. • Develop and implement initiatives and programs that promote international and best practices, excellence and ethics in health research.
2. Develop and maintain a broad base of stakeholder support across Canada.	• Establish and maintain collaborative relationships with stakeholders to meet organizational mandate and goals. • Develop and implement pro-active strategies to attract and secure partnership opportunities.
3. Develop and maintain a coherent and coordinated approach to research across the full spectrum of health research.	• Pursue and secure partnerships with organizations in Canada that share common values and goals in the area of health research.
4. Enhance public and stakeholder engagement in health research in Canada.	• Engage in ongoing dialogue with the Canadian public and other stakeholders to heighten awareness of the significant role health research plays in improving the health of Canadians, the health system and the effectiveness of products and services. • Involve the Canadian public and other stakeholders in priority-setting and appropriate research activities (e.g. peer review panels, forums of various Institutes).
5. Promote science to Canadian children and youth.	• Create opportunities in collaboration with partners to engage children in science discovery (e.g. GEE in GENOME travelling exhibit, Discovery Days).

Organizational Excellence	
Objective	**Action**
1. Provide leadership and coordination in setting direction on important health research issues.	• Ensure that CIHR's research agenda remains current through ongoing consultations with a broad range of stakeholders. • Contribute to the development of innovative public policies related to ethical, legal and socio-cultural issues in health and health research.
2. Promote CIHR's research agenda and ensure that the needs of the scientific communities are effectively met.	• Develop and implement processes designed to effectively respond to the needs of research communities representing the full spectrum of research. • Promote Institute research priorities at all levels of research, policy and practice in Canada and abroad.
3. Build a committed, motivated and productive workforce across the organization.	• Develop and implement a 'continuous learning environment' within CIHR for all staff. • Develop and implement new job classification, evaluation and compensation systems that recognize performance. • Develop and support a healthy work environment.
4. Improve overall organizational effectiveness through ongoing improvements in programs, structures and processes.	• Develop and implement governance renewal processes and mechanisms to support excellence in governance. • Advance an Institute-centred organization through effective alignment of programs, structures and processes with Institute priorities and requirements. • Develop and implement a framework that enables the evaluation of the organization's performance and the value of its programs of research support. • Enhance the effectiveness of CIHR's peer review system. • Develop and implement a risk management framework and mitigate priority risks. • Advance modern management practices to ensure that CIHR meets the objectives of the Government set-out in *Results for Canadians: A Management Framework for the Government of Canada*.
5. Capitalize on technology to enhance service delivery.	• Continue to promote and support the implementation of electronic service delivery such as the Common CV project. • Support the roll-out of ResearchNet – a Canadian research portal that supports collaboration and information sharing among researchers, research organizations, government, industry and the public. • Leverage technology to improve the efficiency and effectiveness of business processes (e.g. peer review, website applications such as e-applications for funding). • Enhance databases and information, including public access to information about CIHR's investments in research.

CIHR ...
Exceptional Value for Canada!

For additional information on
CIHR visit our website at
www.cihr-irsc.gc.ca,
or telephone (613) 941-2672